GENERAL INTRODUCTORY

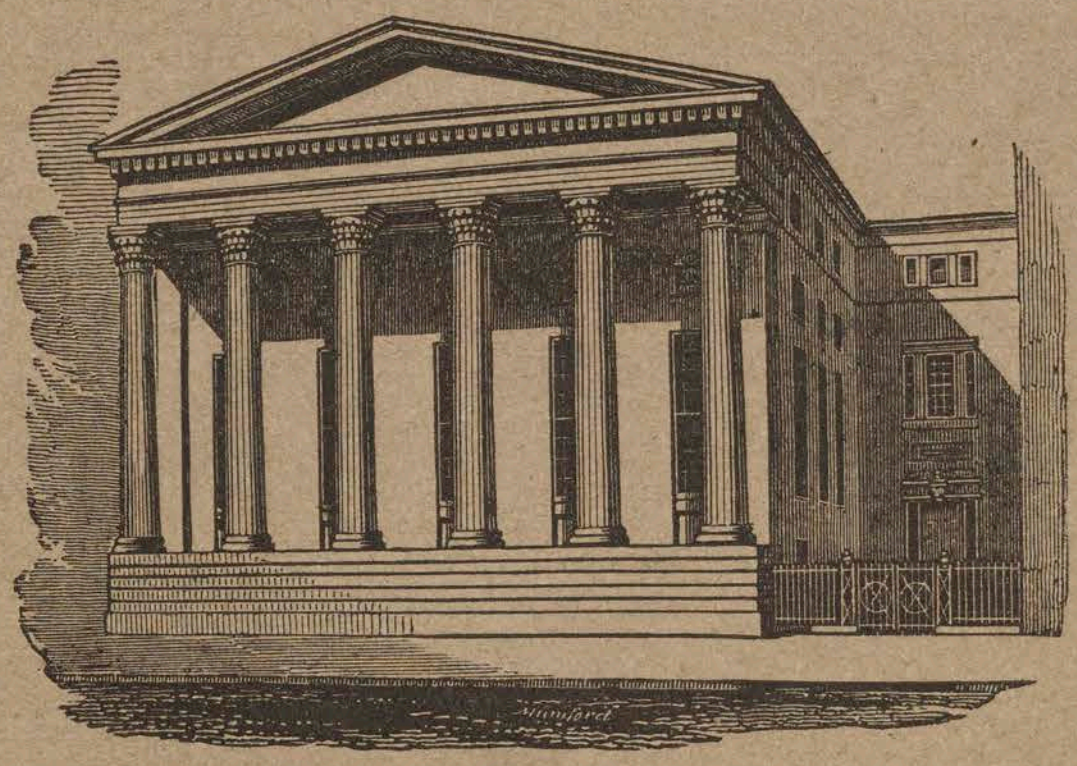
TO THE

COURSE OF INSTRUCTION

IN

JEFFERSON MEDICAL COLLEGE.

SESSION OF 1861-62.



By FRANKLIN BACHE, M. D.,

PROFESSOR OF CHEMISTRY.

JEFFERSON MEDICAL LIBRARY COLLEGE

GENERAL INTRODUCTORY

TO THE

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IN

JEFFERSON MEDICAL COLLEGE

OF

PHILADELPHIA,

FOR THE SESSION OF 1861-62.

Delivered October 14, 1861.

BY

FRANKLIN BACHE, M.D.,
PROFESSOR OF CHEMISTRY.

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CORRESPONDENCE.

JEFFERSON MEDICAL COLLEGE, *Oct.* 18, 1861.

PROFESSOR BACHE—

DEAR SIR: At a meeting of the students of Jefferson Medical College, held October 16, 1861, CHARLES C. SHOYER, M. D., of Wisconsin, having been called to the chair, and Mr. JOHN S. ANGLE, of Pennsylvania, appointed secretary, the following resolution was unanimously adopted:—

Resolved, That a committee be appointed to wait upon Professor BACHE, and request a copy of his Introductory Lecture for publication.

We, the undersigned, constituting the committee, appointed according to the above resolution, would add our earnest solicitation to that of the class, and hope you will favor us with your excellent Address for publication.

Most respectfully, your obedient servants,

J. W. P. BATES, Md.
R. M. GIRVIN, Pa.
P. FITCH, N. J.
FRANK H. WILLIAMS, Pa.
L. K. BALDWIN, Del.
S. K. CRAWFORD, M. D., Ohio.
JAMES B. PATTERSON, Ill.
E. G. LANE, D. C.
B. W. TAYLOR, Ky.
B. F. STRAWN, M. D., Mo.
J. W. APPLEGATE, Ind.
D. H. BARSTOW, Pa.
E. THOMPSON, Newfoundland.
IRA N. BARNES, N. H.
W. M. CHRISTMAN, Pa.
E. BROOKS, N. Y.
JOHN GRANT, Nova Scotia.
C. T. LOWNDES, Va.
W. T. BULLOCK, R. I.
JOSHUA U. BURNETT, New Brunswick.
H. W. ROSS, M. D., Iowa.

October 18, 1861.

GENTLEMEN: I have just received your note of this date, requesting a copy of my Introductory for publication. I willingly comply with your request, and place the manuscript at your disposal.

Very truly, your friend,

FRANKLIN BACHE.

To Messrs. J. W. P. BATES,
R. M. GIRVIN, and others,
Committee of the Jefferson Medical College Class.

GENERAL INTRODUCTORY.

We are assembled, gentlemen, for the purpose of inaugurating the annual course of medical instruction in this College. The faculty welcome you to their Halls, and sincerely hope that your sojourn in our city, for the purpose of acquiring a knowledge of the medical sciences, may prove both pleasant and profitable.

Ever since the establishment of this school, until last year, each professor, conforming to the prevalent usage in similar Institutions, introduced his own branch with an address. Last year the plan was first adopted of having but one address, in the form of a general Introductory, instead of seven separate addresses. The new plan is evidently an improvement; since it enables us to appropriate to regular didactic instruction, nearly a week, which, formerly, was less profitably consumed in delivering special Introductories.

From the time that my colleagues assigned to me the duty of making the opening address for this year, I have given much thought to the question, in what way I could make myself most useful to you on the present occasion. I have concluded that some general remarks on the proper method of prosecuting medical studies, and some advice in regard to your personal deportment, and to the best method of following instruction by lectures, would best subserve your interests.

As men, proposing to devote yourselves to the medical profession as the business of your lives, a good method of study is all-important to your success. Without it you may be diligent, but your progress will be slow; with it, your advancement will be more rapid, and your acquisitions, more definite and distinct, more firmly fixed in your memory, and more available when you come to practise your profession.

The two main duties of medical men are to preserve human health, and to restore it when lost by disease. To be qualified for these duties, the structure of the body, and the nature of inert matter, which forms both our food and medicine, must be carefully studied. This brings the student at once to anatomy and physics, as elementary studies. Under the latter term are included natural philosophy and chemistry. Anatomy may be studied at home, so far as osteology is concerned; for every student can provide himself with the human skeleton at moderate cost. The soft parts cannot be studied from books. These parts can be learned by ocular demonstration only. Surely the student, in the office of his private preceptor, can become familiar with the size and shape of the different bones, and with their relative position in the complete skeleton. An ingenious young man might carve some of them in wood, and model others in clay. Nomenclature, however, is necessary; but this should be learned with the bone in your hand, and a book of anatomy before you. I have elsewhere suggested that a zealous student might make himself skilful in the use of the knife, and familiar with the appearance of the soft parts, by dissecting the lower animals. I will even suppose that you are not provided with dissecting instruments. In this case you may use a razor, and several sharp penknives

as substitutes. A forceps, sufficient for your purpose, can be made by any neighboring blacksmith. When, afterwards, you attend lectures, and enter the dissecting room, you will find this preliminary knowledge of great assistance. In regard to dissection, I subscribe to the sentiment of the celebrated Wistar, that no one is justifiable in cutting the living body, who has not dissected the dead. Hence, all surgeons should be thoroughly acquainted with practical anatomy, and the same knowledge is necessary to all practitioners of both medicine and surgery. Now, the latter designation includes nearly all of you; for country physicians must attend to surgery.

Natural philosophy treats of matter, when acting, for the most part, in masses. It is not taught in our medical schools as a separate branch, but is introduced, incidentally, in the course of chemistry. A knowledge of this branch is, nevertheless, very important. To prove this I need only to remind you of the aid, afforded by a knowledge of the laws of light and sound to the ophthalmologist and aurist, of the pressure of the atmosphere to the physician, and of the mechanical powers to the surgeon.

After studying matter in its mechanical relations, as manifested in the mutual action of masses, it is next necessary to consider it as acting by its minute parts. Matter, taken in this relation, constitutes chemistry; and hence chemistry may be defined to be the science which instructs us in the minute anatomy of matter. It is in this point of view, particularly, that matter should be studied by the medical man. Thus, chemistry teaches us the intimate nature of the different substances, used as food, which, by analysis, we are enabled to reduce to certain proximate and ultimate principles. Again, remedial agents, for the most

part, consist of matter; and these, by analytic processes, are made to yield their active principles, constituting some of our most valuable remedies. The matter of the human body is likewise submitted to this minute chemical dissection, and light is thus shed on the nature of healthy and morbid parts and products, a knowledge of which aids the physician in detecting and treating disease. It is not claimed that chemistry can explain vital laws,—these falling within the domain of physiology; but certainly, in very many instances, it elucidates them; and, although vital action is not chemical action, yet both agree in being the mutual action of matter, operating by its minute parts.

Thus, gentlemen, you perceive that you must study the chemical properties of the dead body, in order to prepare you to understand the vital manifestations of the living body; and, to the same end, you must study the chemical properties of non-vitalized matter; such as the air we breathe, the water we drink, the food which sustains us in health, and the medicines which restore us in disease.

The description of remedial agents constitutes the branch of medicine, called materia medica. In studying this branch, the same rule should guide you that I have laid down for the study of osteology. Read of no drug or medicine, when you are beginners, unless you have a specimen of it before you. Following this rule, you should first study the nature of the drugs and medicines, to be found in the shop of your preceptor. By doing so, you will soon become familiar with the medicines, most important to be known, because most used. By handling, viewing, tasting, smelling, and, if you please, taking the drug, you get a practical knowledge of its sensible properties and physiological action. You should use a book on materia medica at the same time, and

turn to the description of each specimen examined. When you come to attend lectures on this branch, you can enlarge your knowledge of drugs and medicines, by means of specimens, exhibited by the professor of materia medica; and, at the same time, learn the principles, regulating the administration of remedies. In case your private preceptor has no collection of medicines for his own use, you should make an arrangement with some apothecary to visit his shop daily, stipulating for the privilege of inspecting his drugs, and agreeing to assist in the details of his business, so far as your knowledge may enable you to do.

In this connection I will make known to you an opinion which I have long held. We will suppose that a boy is destined for the medical profession. Now, the very best preparation he can make for regular medical studies, is to place himself as an apprentice with an apothecary, from the age of fourteen or sixteen, to eighteen. You are all too old to follow this advice; but I give it for the benefit of your successors. Some of you, in the course of human events, will have sons, who may choose medicine as a profession; and I wish you to bear in mind my advice to place them, when young, where they may become familiar with the tools they are afterwards to work with. A young man who begins his medical studies in this way, will gain a practical knowledge of drugs, of great use to him when he becomes a practitioner. To gain this knowledge requires, at least, two years; and yet I have read of one smart young man, who boasted that, although he had been at the drug business only six months, he could guess at a dose of calomel already!

Intimately connected with materia medica is natural history. The articles, embraced in the list of materia medica, are derived from the three great kingdoms of nature,—a few

from the animal kingdom, more from the mineral, and most from the vegetable. This statement shows how important, as preliminary studies, zoology, mineralogy, and botany are. Without insisting on the first two sciences named, as essentially necessary to the physician, it is far otherwise with botany. It is not too much to say, that the medical student should make strenuous exertions to become acquainted with the elements of this science. In the rural districts he is surrounded with the beauties of the vegetable world, presenting to him an inviting field for self-instruction in the attractive and useful science of botany.

Chemistry is a somewhat difficult science, especially for those medical students who have not previously taken a degree in the arts. Those who have taken this degree, have already, under favorable circumstances, studied the general principles of chemistry. Not so with the medical student, whose first chemical course is that which he attends in a medical school. We will assume that he follows all the branches, included in the curriculum of the school. In doing so he has six subjects to listen to, while he is striving to gain a knowledge of chemistry. Moreover, the courses of chemistry in medical schools are, or ought to be, full of varied details, giving, as far as time will permit, the applications of the science to the various departments of medicine. You perceive, gentlemen, how seriously are tasked the intellect and memory of medical students, when they undertake to follow a full course of medical lectures, without sufficient acquaintance with general science. Such a plan of crowded studies disregards the principle of the proper sequence of subjects, a principle which, when properly carried out, tends more than any other to solid acquisition and rapid progress.

In some medical schools, "medical chemistry" is announced as the branch taught, instead of "chemistry," the usual designation of the chair. Medical chemistry is *applied* chemistry; and every student who takes such a course, is presumed to have previously acquired a competent knowledge of general chemistry; for, otherwise, he is not prepared to apply the science. Suppose a student were to ask a mathematician to teach him applied mathematics. The mathematician, if he accepted him as a pupil, would assume that he was already versed in general mathematics; but, if not so versed, the pupil would be informed that it would be necessary for him to begin with general mathematics, as an indispensable introduction to its applications.

So long as the reform of establishing a proper sequence of studies in our medical schools is postponed, it must be acknowledged that medical students have to contend with difficulties of no ordinary nature.

Chemistry is a science which cannot be profitably studied in the office of a private preceptor. Like anatomy it is mainly a demonstrative science, its chief phenomena requiring to be seen, in order to be understood. Demonstrative lectures are, therefore, found to be the only eligible mode of conveying a knowledge of its principles. It is true that some details may be learned from private study; just as some details, relating to articles of the vegetable materia medica, may be learned in the same way. Thus, those chemical articles of the materia medica, which are found in every shop of medicines, because prescribed every day, may be studied, so far as to obtain a correct knowledge of their names and sensible properties. To chemical medicines the rule of profitable study, already laid down, namely, to have the specimen before you while you are reading about it, is

equally applicable as to those directly furnished by the vegetable and animal kingdoms.

After the student has gained a competent knowledge of anatomy, chemistry, and materia medica, he is properly prepared to undertake the study of physiology, or the laws of normal vital action, and of pathology, or the laws of abnormal vital action. These two branches are parts of the same great science,—the science which investigates the laws of life.

The branches of medical study to which I have referred, are necessary acquisitions to prepare the student to enter upon the practice of the healing art. He deduces from these, and from the careful observation of numerous cases of disease, the general laws by which its cure is to be accomplished; and this constitutes the science of general therapeutics. The "practice," so-called, that is, special therapeutics, is not a science, but the application of the knowledge, derived from different medical and subsidiary sciences, to the cure of disease. General therapeutics forms a good introduction to such an application; because it teaches the principles on which the cure is to be conducted. The same science forms a good introduction, also, to materia medica, and, indeed, as a branch, is generally attached to that chair. The practice of the healing art is conveniently divided into the practice, severally, of medicine, of surgery, and of obstetrics; but still it is a unit in a scientific sense, and is founded on the same general principles, to whichever department it is applied. Nevertheless, the division is useful, on the principle, applicable to so many cases, of the division of labor.

Special therapeutics is taught in most medical schools by both the professor of materia medica and of practice, but more in detail by the latter. Thus, these two professors

may teach, the one that quinia is the best remedy for intermittent fever; the other, that intermittent fever is most successfully treated with quinia. Repetitions of the same statement, from these chairs, are not to be viewed as defects in the system of instruction, but rather as a desirable thing; inasmuch as it tends to impress the method of conducting the cure on the memory of the student.

From what has been said, gentlemen, you perceive that, in the prosecution of medical studies, I advocate the plan of engaging in the acquisition, first, of elementary branches, and afterwards of those which may be called applied branches. Holding these views, and adapting them to the present organization of the medical schools of this country, I advise that the student should attend three sessions of the medical school of his choice; taking the elementary branches, anatomy, chemistry, and materia medica, the first year, and all the branches the two succeeding years. This plan involves the expense, incident to the postponement of candidateship for one year, but no additional cost for lecture fees.

It is true that medical students, for the most part, reject this plan, preferring to attend two sessions only of a medical school, and to take full courses each session. They thus subject themselves voluntarily, during the first session, to the disadvantage of sometimes listening to applications of principles, before the principles themselves have been taught, and incur the risk of gaining but a confused and imperfect knowledge of the numerous subjects, presented from seven distinct chairs. The students who choose this plan, should postpone their coming to the medical school, until they are as well prepared on the elementary branches, by office study, as possible. Others, who may prefer to attend three sessions, need not delay their attendance; but may

take, with advantage, the partial course recommended, at the first lecture-term that occurs after the commencement of their medical studies.

Many students think it an important point gained, to present themselves for graduation at the earliest period that is consistent with the rules of the school they attend. Let us suppose that a young man, beginning his studies at eighteen, has got his degree at twenty-one. Though he has obtained his diploma, he may not possess a high grade of passable medical acquisition. Being conscious of his deficiencies, he dreads to enter upon the practical duties of his profession. Now, what is the situation of such a young man, when he comes to prescribe for his first patient? He is too conscientious to prescribe at random, and too ignorant to apply the proper remedies. If he persevere in his profession, let us hope that he will decline practice, until, by several years of additional study, he shall have gained the confidence, derived from greater age and greater knowledge. There are some, however, who do not take this wise course, but either go blundering on, a disgrace to our profession, or abandon it in despair and disgust. If the young man, supposed, had originally pursued his studies for four or five years, instead of the minimum period of three years, he would find himself more advanced in the end than by his adoption of the vicious system, here condemned, in his haste to secure the honors of his profession. *Festina lentè* should be the guiding motto of all medical students.

Much has been written on the subject of what should constitute a proper preliminary education for the medical student. The least admissible preparation is a good English education, a knowledge of the principles of mathematics and of physics, and sufficient proficiency in the Latin language

to enable him to write and construe Latin prescriptions, and to understand medical terms, so far as these are derived from the Latin. A knowledge of Greek is desirable, but not essential. No one should begin the study of medicine who is not properly prepared; or, at least, who is not willing, if imperfectly prepared, to make up his deficiencies by extra application. Physicians may and do differ as to what should constitute proper preparation; but they all agree that preparation is necessary. How, then, shall the profession carry out their unanimous sentiment in regard to this matter? Shall it be left to the young man himself to judge of the sufficiency of his own acquirements? By no means. Who, then, shall decide? I answer, the duty of deciding devolves properly on the physician to whom a young man applies to be admitted as a private pupil. If he is not adequately prepared, by his previous acquirements, to enter upon the study of a learned profession, such as medicine undoubtedly is, the physician should decline to receive him. In this way the evil of imperfect scholastic preparation, which the profession so much deplores, would, in a great measure, be prevented. But some have contended, that it is the duty of the professors of medical schools to pass upon these qualifications of scholarship, and, consequently, that they should subject the medical student to a preliminary examination as to his acquirements, before he is permitted to attend lectures. By adopting such a course, medical professors would act unreasonably, not to say unjustly. If incompetent young men are to be prevented from joining the ranks of the medical profession, the object must be accomplished by stopping them at the very threshold, when they offer to enter upon the medical-student path, not after they have followed that path, in good faith, for, perhaps, six months or a year.

I shall be brief on the subject of medical reading. During attendance on lectures, a systematic course of reading cannot be pursued. At this period all that can be accomplished, is to refer to books, to clear up points in the lectures that may not be fully understood. The books of reference that you use should all have indexes; otherwise they are not worth to you more than waste paper. Of course it is understood that every student should have a good medical dictionary. During the lecture recess, the student should read methodically and diligently, using pen or pencil to make notes of whatever strikes him as particularly valuable, and comments on propositions that do not command his assent. Some books must be read carefully, and even re-perused; others may be merely skimmed; while others, again, by the aid of their indexes, must be read, here and there attentively, in elucidation of various points, whether of medical doctrine or of medical practice, to which the student may have had his attention specially directed in the course of his studies.

I address myself to first-course students, exclusively, in the remarks which I deem it proper to make, in relation to the thesis, which every candidate in this school must hand in before he can be examined for a degree. The spring or early summer, preceding his last lecture session, is the proper time for the student to prepare his essay. He then has leisure enough to produce a creditable performance, provided he takes the requisite pains. If this unavoidable work is postponed until after the commencement of his last course, when his time is fully occupied in following the various lectures, and his mind rendered anxious by the near approach of the period for examination, it will be executed in haste, and, perhaps, in a slovenly manner, and will not fairly represent the literary attainments of the writer. I need not remind

the student, that the thesis forms an element, in making up the judgment of the faculty, as to the fitness of a candidate.

Students who repair to large cities, for the first time, to attend medical lectures, are exposed to many risks and temptations. If you encounter temptation, think of your homes as your best shield. The virtuous associations, thus called up, will form your surest protection; for you will think of near and dear relatives that you have left behind, and feel that the luxury of pleasing them, and of fulfilling their cherished hopes, will far outweigh the ephemeral gratifications, derived from a life of dissipation.

On your arrival, the first care of each of you should be to obtain a good boarding-house. It is best to select one which has few or no boarders besides yourself; as your object is to be quiet, and subject to as few interruptions as possible. Some students choose a room-mate, in order to reap the supposed advantages of joint study. I do not advise you to make this arrangement; for it is likely that you will be more retarded by the interruptions he may occasion, than benefited by his co-operation. You should be extremely careful of your health. Besides the danger and suffering, attendant on disease, you incur loss of time, which is peculiarly unfortunate; as it breaks in upon the continuity of the lecture-instruction. By these interruptions through illness, you lose not only lectures, but also the chain of connection; and the loss of the latter interferes with the proper understanding of those subsequently attended. Your clothing should be carefully adapted to the weather, and you should provide yourselves with all necessary appliances to guard against wet. To sit a number of hours, listening to lectures, in wet clothes, and with wet feet, is certainly to incur considerable risk to health. In this connection I think it right

to remind you, that unprotected persons are liable to the small-pox. If you are unprotected against this disease, or if you are doubtful whether your protection is trustworthy or not, you should immediately resort to vaccination, and thus secure yourselves against an attack of a dangerous and loathsome malady.

At the close of the last session, our colleague, Dr. Meigs, resigned the professorship of obstetrics. Bearing in mind his long and faithful services, we were loath to part with our eminent colleague, eminent alike as a writer, teacher, and practitioner; but we were all aware of his wish, entertained for several years past, to relinquish the cares and toils of public teaching; and, however desirous we might be to retain him as a colleague, we could not too strongly urge our selfish wishes against his carrying out his long meditated step. The trustees of the College promptly filled the vacancy by the appointment of Dr. William V. Keating, of this city, a gentleman who had devoted himself to obstetrics from the outset of his medical career, and who had earned an enviable reputation as a rising practitioner and teacher of that branch. The vacancy having been thus filled, the faculty felt entire confidence, that their new colleague would be ready, the ensuing winter, to discharge the duties of his chair to the satisfaction of all. Alas! these expectations have been disappointed. Dr. Keating was attacked, in the summer, with severe disease, which made it necessary for him to try the effects of a voyage to Europe, to promote the restoration of his health. It was his intention to return in the month of September, for the purpose of making the necessary preparations for fulfilling his new duties. This intention he has not been able to carry out; for, although his health has been improved by the voyage, yet it is not sufficiently restored to

make it safe for him to undertake the mental labor of conducting a course of lectures. His resignation was received by the trustees in the beginning of last month, its presentation having been delayed by Dr. Keating to that late period, in the hope, no doubt indulged by him, that his health would be restored in time, to enable him to undertake his new duties.

Thus, unforeseen events, which we all deplore, produced a vacancy in our faculty, on the eve of the period for opening our session of lectures. To meet this state of things, much prudence is required in the management of a medical school. If the vacancy be filled at once, it is filled in haste; and, besides, the successful candidate has but little time to prepare for his new duties. The course, taken by our trustees, shows that they felt the inexpediency of making an appointment on short notice, and just before the period for commencing the lectures; for they have requested our Emeritus Professor of Obstetrics to undertake the instruction in that branch for the ensuing session. This request Dr. Meigs has, in the kindest manner, acceded to, and, accordingly, you will have the pleasure and profit of listening to his valuable lectures for another year.

It is time that I should bring this address to a close. In it I have touched upon many topics, but, principally, on the important one of the proper mode of conducting your studies, both during the attendance on lectures, and in the lecture recess. Methodical study, pursued with diligence, is what you should aim at. Studying by fits and starts will answer no good purpose. Depend not on your supposed talents, or on your aptitude to learn. You may be mistaken in your self-estimate as to these; but, even if you are not mistaken, they are no match for persevering industry. Be

regular in your attendance on the lectures. Nothing but absolute necessity can justify neglect in this particular. I have often been mortified to observe with what apparent unconsciousness of its impropriety, students will absent themselves from lectures on the most trivial grounds. Leaving a medical school before the several courses are finished, is another great evil which calls loudly for correction. In most of the medical schools of Europe, students are obliged to inscribe their names, in a register, on the last day of the session, as an evidence of their presence at the end of the course.

The troubles of our country have diminished our class; but, be assured, gentlemen, this circumstance will not lessen, in any degree, the zeal with which, as a faculty, we shall devote our whole energies to your instruction. While this is so, bear in mind that you have duties to perform towards us. By placing yourselves under our medical instruction, you have entered into a tacit agreement to do your best to gain a competent knowledge of the medical sciences. Will you do your duty as diligent students? I am sure you will, gentlemen, and, when the day of trial comes, all will be well.

Nov. 2, 1861.